

What is Claimed:

1. A substrate for use in is a data storage system, comprising:
at least one plastic or plastic composite material;
said plastic or plastic composite material exhibiting a modulus of about 350 kpsi or greater.
2. The substrate of claim 1 wherein said plastic or plastic composite material exhibits a modulus in the range of about 400 to 3,000 kpsi.
3. The substrate of claim 1 wherein said plastic or plastic composite material is selected from: polysulfone (PSU), polyethersulfone (PES), polyetherimide (PEI), polyphenylsulfide (PPS), polyphthalamide (PPA), liquid crystal polymer (LCP), polyetheretherketone (PEEK), polycarbonate (PCB) and any combinations thereof.
4. The substrate of claim 1 wherein said plastic or plastic composite material further includes a filler such as a damping agent or a reinforcing agent.
5. The substrate of claim 4 wherein said reinforcing agent is selected from carbon fibers, glass fibers, mineral particles, and any combinations thereof;
6. The substrate of claim 4 wherein said damping agent is selected from elastomeric materials.
7. The substrate of claim 4 wherein the filler has a concentration in the range of about 5 to 65 weight %.
8. The substrate of claim 1 where said one or more plastic or plastic composite materials

comprises two or more layers of said materials and any combination thereof.

9. The substrate of claim 1 further comprising:
said plastic composite material forming a core layer; and
said plastic material forming one or more skin layers formed atop said core layer.

10. The substrate of claim 9 wherein said core layer includes a damping agent and/or a reinforcing agent dispersed in said core layer.

11. The substrate of claim 1 wherein said substrate is formatted with servo control patterns.

12. A disk including the substrate of claim 1 and further comprising:
a MO or MR layer structure; and
a carbon overcoat formed atop said MO or MR layer structure.

13. The disk of claim 12 further comprising:
a read/write head;
an actuator for moving said read/write head; and
a motor for rotating said disk.

14. A substrate for use in is a data storage system, comprising:
at least one core layer made of a plastic or plastic composite material; and
at least one skin layer made of a plastic or plastic composite material, and formed
atop at least one surface of said core layer, wherein at least one of said core or skin layers
exhibit a modulus of about 350 kpsi or greater.

~~15. The substrate of claim 14 wherein said plastic or plastic composite material is~~

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selected from: polysulfone (PSU), polyethersulfone (PES), polyetherimide (PEI), polyphenylsulfide (PPS), ~~polyphthalamide (PPA)~~, liquid crystal polymer (LCP), polyetheretherketone (PEEK), polycarbonate and any combinations thereof.

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16. The substrate of claim 14 wherein said plastic or plastic composite material further includes a filler such as a damping agent or a reinforcing agent and wherein the filler has a concentration in the range of about 5 to 65 weight %.

10 17. The substrate of claim 16 wherein said reinforcing agent is selected from carbon fibers, glass fibers, mineral particles, and any combinations thereof;

18. The substrate of claim 16 wherein said damping agent is selected from elastomeric materials.

15 19. An apparatus, comprising:
a disk drive spindle motor; and
at least one data storage disk mounted on said disk drive spindle having means for exhibiting a modulus of about 350 kpsi or greater.

20 20. The apparatus of claim 19 further including means for strengthening and/or damping energy that the apparatus is subjected to.